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February 20, 1969

U.S. Government

Attention: George M.

Dear George:

Recently you requested a quotation for a 0.5 power relay lens and cell as a replacement unit in a [] Type 880 or 1210 binocular microscope viewing system, a special film transport for the [] Type 1032T Microdensitometer, and service for the modification of your [] Type 1032 Microdensitometer digital readout system. We are pleased to provide the following quotation:

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Item 1

0.5 power relay lens and cell to replace a 1-power relay lens unit in a [] Type 880 or 1210, 400 Series binocular microscope viewing system. This lens provides approximately 200 lines per millimeter resolution at 40X magnification, and changes the field of view to 5 millimeters. The magnification ranges to 10 to 20X with a 5X eyepiece, and 20 to 40X with a 10X eyepiece. Apparent reticle width to 5 microns at the film plane. Price includes necessary instruction for customer installation.

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Item 2

Special film transport (manual) for [] Type 1032T Microdensitometer similar to film stage for 9-1/2" film furnished with 1032T07 except minus the upper pressure frames (clear and glass) but to include a special glass insert having a slot 9-1/2" long x 5/8" wide covered with a sheet of .010" thick glass.

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Item 3

Modification of your [] Type 1032 Microdensitometer digital readout system including equipment, services, and supplemental drawings, to permit increase in density data sampling rate at lower scan speeds as described below.

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The present system provides for selection of sampling intervals in increments of one micron, and is limited by the resolution of the X and Y data heads. To permit more frequent sampling, it will be necessary to provide an external asynchronous oscillator, shaping and resynchronizing circuits and switching for selection of the sampling source.

The introduction of the external sampling signal will be at a point in the circuit after the interval counter. Thus, the coordinate values recorded on tape at the beginning and end of the scan will retain their proper significance. The coordinates of any sample may be determined to a reasonable degree of accuracy by interpolation.

A wide range variable frequency oscillator, such as the [redacted] Model 1310-A will be used as the sampling rate source. It will be provided with a rack type mount designed to replace one of the blank panels in the present equipment rack. A switch for selection of external or internal sampling source will be mounted with the oscillator. STAT

For shaping, resynchronizing and gating, it is proposed that unused circuits on the SDS cards in chassis A and B of the present equipment be utilized. It is estimated that the necessary installation and wiring may be completed in the field within one day.

The external sampling rate source will provide a resolution of over one thousand samples per micron when used at the lowest scan speed of 125 microns per minute.

The delivery schedule would be 30 days for Item 1 and 90 days for Items 2 and 3, after receipt of an order. Our terms are net 30 days, and all prices quoted are fob [redacted] This quotation is firm for a period of 60 days. STAT

We trust this information is sufficient for your immediate action.

[redacted] STAT
Director of Marketing

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R & D CATALOG FORM		DATE 15 April 1969
1. PROJECT TITLE/CODE NAME Microdensitometer Modifications (Stage Modification)		2. SHORT PROJECT DESCRIPTION This project is to fabricate a modified stage for the [] 1032T Microdensitometer operated at NPIC. STAT
3. CONTRACTOR NAME []		4. LOCATION OF CONTRACTOR [] STAT
5. CLASS OF CONTRACTOR Manufacturer		6. TYPE OF CONTRACT FP
7. FUNDS FY 19 68 \$ None FY 19 69 \$ [] FY 19 70 \$ None		8. REQUISITION NO. 10. EFFECTIVE CONTRACT DATE (Begin - end) May 1969 - July 1969
		9. BUDGET PROJECT NO. 11. SECURITY CLASS. A.A. - Confidential STAT T. - Unclassified W. - Unclassified
12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION DDI/NPIC/TSSG/DED [] STAT		
13. REQUIREMENT/AUTHORITY The [] 1032T Trichromatic Microdensitometer has optical aberrations caused by the thick glass stage. These aberrations will have to be reduced before any color film can be analyzed. STAT		
14. TYPE OF WORK TO BE DONE Engineering Development		
15. CATEGORIES OF EFFORT		
MAJOR CATEGORY Precision Measurement		SUB-CATEGORIES Microdensitometry Optical Systems
16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC. A modified stage will be produced by the manufacturer. This stage will have a center section of very thin glass which will minimize the optical problems caused by the existing glass stage.		
17. SUPPORTING OR RELATED CONTRACTS (Agency & Other)/COORDINATION This contract will run concurrently with another contract to [] to improve the scan control and sampling system. After completion of this contract, commercial lens systems will be tried in the microdensitometer to reduce other optical aberrations; if the results of this investigation are not satisfactory, a lens development will be required. Coordination through EXRAND has been performed. STAT		
18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required) The [] 1032T Trichromatic Microdensitometer is an analytical instrument used in the evaluation of film imagery. The instrument is also used to a limited extent to "enhance" images to increase their intelligence value. At present the instrument is virtually useless in analyzing color imagery because of the aberrations in the optical system, the stage being a prime cause of these aberrations. By minimizing the thickness of the stage the aberrations caused by it will also be minimized. STAT		
19. APPROVED BY AND DATE		
OFFICE	DEPUTY DIRECTOR	DDCI